FIG. 1

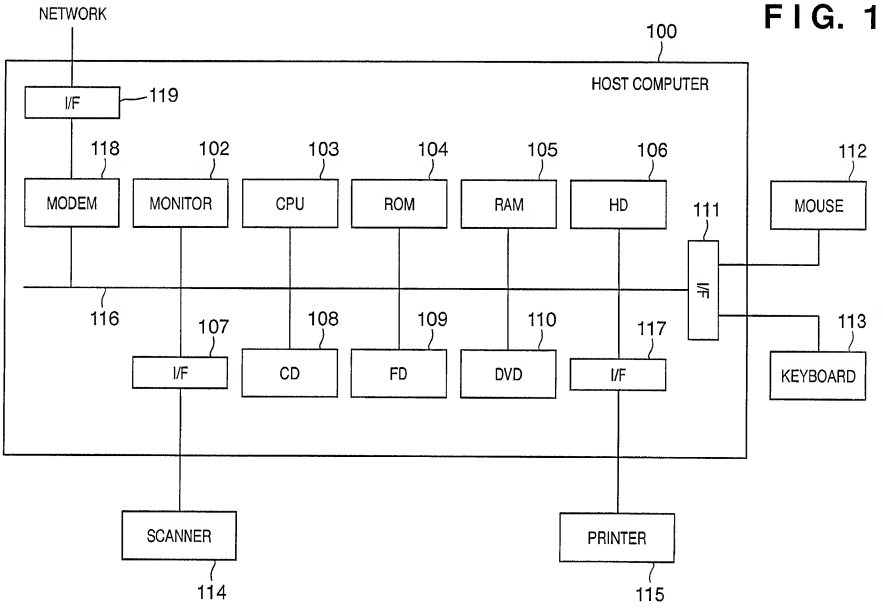
NETWORK
100
HOST COMPUTER
I/F
119
118
MODEM
102
MONITOR
103
CPU
104
ROM
105
RAM
106
HD
111
I/F
112
MOUSE
116
107
I/F
108
CD
109
FD
110
DVD
117
I/F
113
KEYBOARD
SCANNER
114
PRINTER
115

FIG. 2

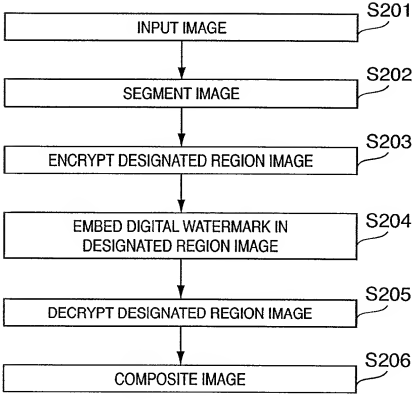
INPUT IMAGE
S201
SEGMENT IMAGE
S202
ENCRYPT DESIGNATED REGION IMAGE
S203
EMBED DIGITAL WATERMARK IN DESIGNATED REGION IMAGE
S204
DECRYPT DESIGNATED REGION IMAGE
S205
COMPOSITE IMAGE
S206

FIG. 3

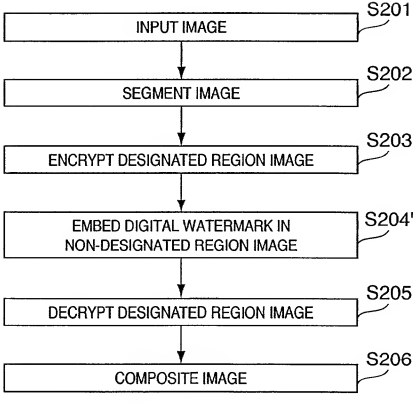
INPUT IMAGE
S201
SEGMENT IMAGE
S202
ENCRYPT DESIGNATED REGION IMAGE
S203
EMBED DIGITAL WATERMARK IN NON-DESIGNATED REGION IMAGE
S204'
DECRYPT DESIGNATED REGION IMAGE
S205
COMPOSITE IMAGE
S206

FIG. 4

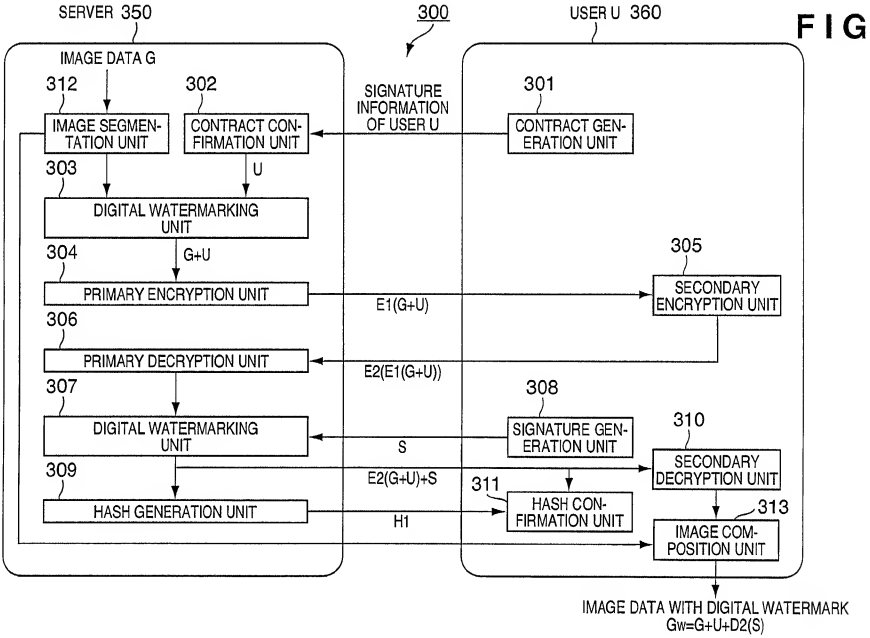
SERVER 350
300
USER U 360
IMAGE DATA G
312
302
SIGNATURE INFORMATION OF USER U
301
IMAGE SEGMENTATION UNIT
CONTRACT CONFIRMATION UNIT
CONTRACT GENERATION UNIT
303
U
DIGITAL WATERMARKING UNIT
304
G+U
305
PRIMARY ENCRYPTION UNIT
E1(G+U)
SECONDARY ENCRYPTION UNIT
306
PRIMARY DECRYPTION UNIT
E2(E1(G+U))
307
308
DIGITAL WATERMARKING UNIT
S
SIGNATURE GENERATION UNIT
310
309
E2(G+U)+S
SECONDARY DECRYPTION UNIT
311
HASH GENERATION UNIT
H1
HASH CONFIRMATION UNIT
313
IMAGE COMPOSITION UNIT
IMAGE DATA WITH DIGITAL WATERMARK
Gw=G+U+D2(S)

FIG. 5

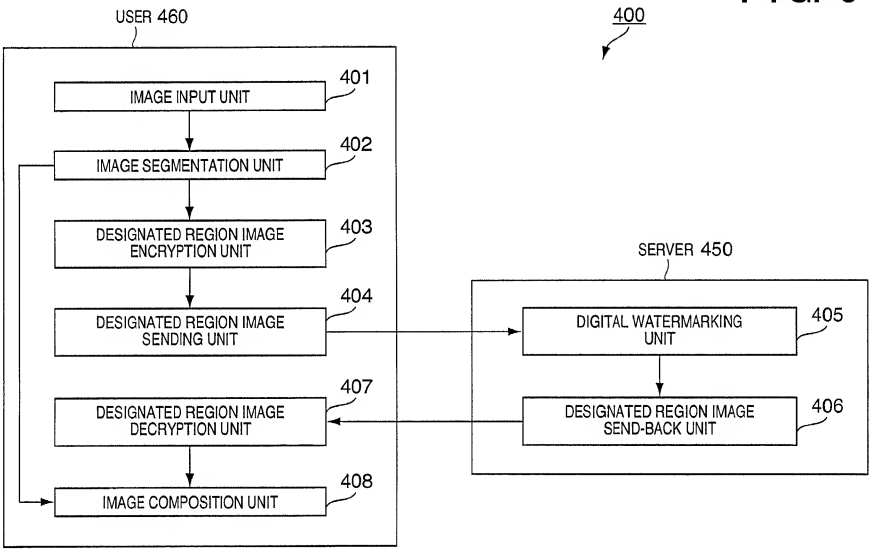
USER 460
400
401
IMAGE INPUT UNIT
402
IMAGE SEGMENTATION UNIT
403
DESIGNATED REGION IMAGE ENCRYPTION UNIT
404
DESIGNATED REGION IMAGE SENDING UNIT
407
DESIGNATED REGION IMAGE DECRYPTION UNIT
408
IMAGE COMPOSITION UNIT
SERVER 450
405
DIGITAL WATERMARKING UNIT
406
DESIGNATED REGION IMAGE SEND-BACK UNIT

FIG. 6

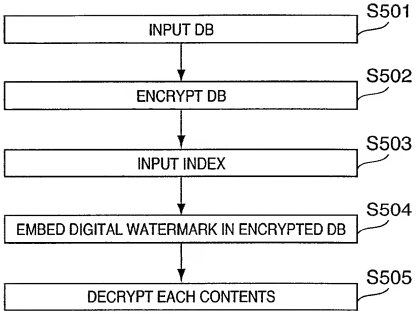
S501
INPUT DB
S502
ENCRYPT DB
S503
INPUT INDEX
S504
EMBED DIGITAL WATERMARK IN ENCRYPTED DB
S505
DECRYPT EACH CONTENTS

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FIG. 7

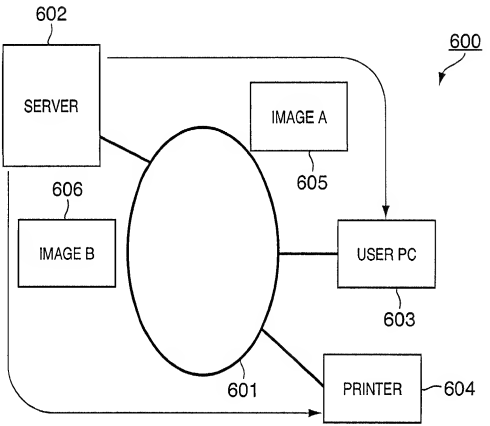


FIG. 8

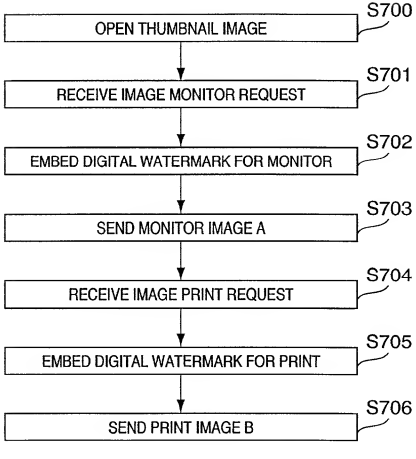

S700
OPEN THUMBNAIL IMAGE
S701
RECEIVE IMAGE MONITOR REQUEST
S702
EMBED DIGITAL WATERMARK FOR MONITOR
S703
SEND MONITOR IMAGE A
S704
RECEIVE IMAGE PRINT REQUEST
S705
EMBED DIGITAL WATERMARK FOR PRINT
S706
SEND PRINT IMAGE B

FIG. 9

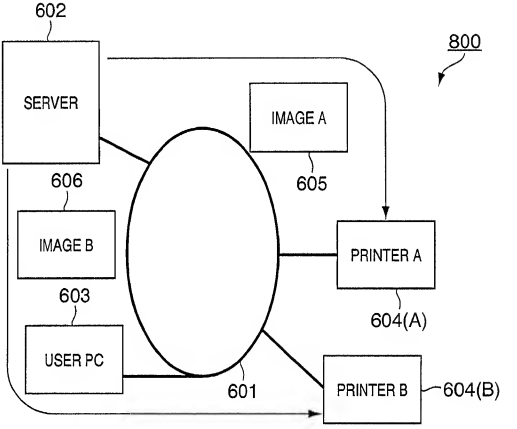

602
800
SERVER
IMAGE A
605
606
IMAGE B
PRINTER A
603
604(A)
USER PC
601
PRINTER B
604(B)

FIG. 10

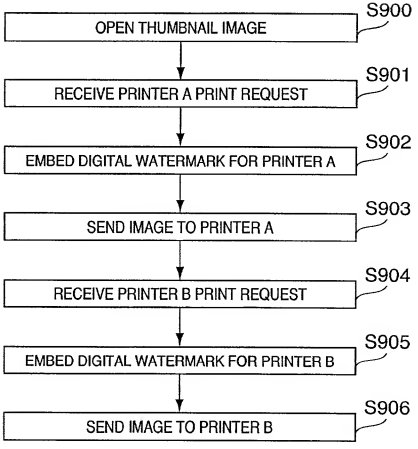
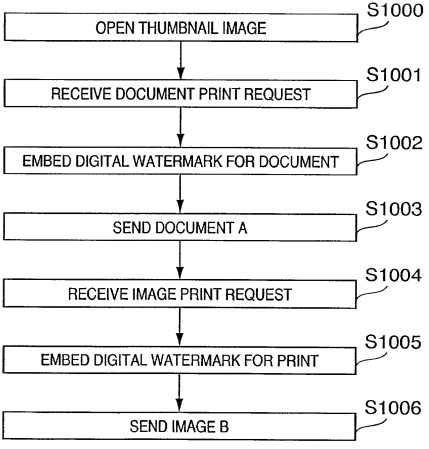

S900
OPEN THUMBNAIL IMAGE
S901
RECEIVE PRINTER A PRINT REQUEST
S902
EMBED DIGITAL WATERMARK FOR PRINTER A
S903
SEND IMAGE TO PRINTER A
S904
RECEIVE PRINTER B PRINT REQUEST
S905
EMBED DIGITAL WATERMARK FOR PRINTER B
S906
SEND IMAGE TO PRINTER B

FIG. 11


S1000
OPEN THUMBNAIL IMAGE
S1001
RECEIVE DOCUMENT PRINT REQUEST
S1002
EMBED DIGITAL WATERMARK FOR DOCUMENT
S1003
SEND DOCUMENT A
S1004
RECEIVE IMAGE PRINT REQUEST
S1005
EMBED DIGITAL WATERMARK FOR PRINT
S1006
SEND IMAGE B